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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,348	09/29/2000	Steven M. Bennett	42390P9238	2192

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EXAMINER	
LERNER, MARTIN	

ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/676,348	BENNETT, STEVEN M.	
	Examiner	Art Unit	
	Martin Lerner	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6,7,9,15,16,18 and 26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6,7,9,15,16,18 and 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 6, 7, 9, 15, 16, 18, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kuhn et al.* in view of *Kanevsky et al.*

Concerning independent claims 6 and 15, *Kuhn et al.* discloses a method, system, and computer program, comprising:

"receiving digitized voice data from a user" – speech input supplied through microphone 26 is first digitized (column 3, lines 66 to 67: Figure 2);

"processing the voice data to determine one or more phrases recognized as the digitized voice data provided by the user based on a currently active recognition grammar" – the output of speech recognizer module 40 is supplied to the natural language parser 42 working in conjunction with a set of goal oriented grammars 44 (column 3, line 66 to column 4, line 10: Figure 2); in some instances, the natural language parser will immediately identify a program the user is interested in watching, but in other instances, there may be multiple choices or possibilities (column 4, lines 38 to 54: Figure 2); the set of grammars have context-sensitive grammar rules for each

topic, e.g. grammar A 240 and grammar B 242 ("a currently active recognition grammar") (column 6, lines 50 to 65: Figure 4);

"when one or more phrase is recognized as the digitized voice data provided by the user as a result of voice-recognition uncertainty, using user-specific context information to choose a recognized phrase from the one or more phrases recognized as the digitized voice data" – automatic speech recognition process block 217 generates word confidence vector 268 which indicates how well words in input sentence 218 were recognized ("voice-recognition uncertainty"); dialog manager 130 generates dialogue context weights 269 by determining the state of the dialog by asking the user about a particular topic; due to this request, dialog manager 130 determines what the user said (column 7, lines 18 to 29: Figure 4); the dialog manager has a user profile data store 56 ("user-specific context information"), which stores information about the user's previous information selections; thus, this data store helps the dialog manager tune its prompts to best suit the user's expectations (column 4, lines 48 to 54: Figure 2); N-best processor 270 selects the highest-scoring candidate as what the user intended (column 7, lines 59 to 64: Figure 4).

Concerning independent claims 6 and 15, *Kuhn et al.* omits an elimination procedure to select a final phrase, but *Kanevsky et al.* discloses a method, system, and computer program, comprising:

"selecting elements of uncertainty within the one or more recognized phrases" – as each ambiguity is encountered, recognition is suspended to allowing presenting questions to the user to discriminate between potential selection classes; an

intermediate question is posed to discriminate between "meet at heaven" and "meet at seven" (column 3, lines 27 to 39);

"selecting the user-specific context information from a database based on the elements of uncertainty" – classification questions are posed based upon classification questions concerning space or time relationships, whether the phrase describes a noun, verb, or adjective, etc. (column 3, lines 40 to 63); potential final alternative classes may be selected to include a personal characteristics class profile ("user-specific context information") (column 4, lines 37 to 45);

"eliminating phrases within the one or more recognized phrases based on the user-specific context information regarding the elements of uncertainty" – based on the user's response, intermediate decoding alternatives are narrowed, eliminating choices that are incongruous with the user's response (column 5, lines 4 to 9: Figure 2: Step 132);

"selecting a final phrase as the recognized phrase once all other phrases within the one or more recognized phrases are eliminated" – if all ambiguities have been resolved, then a final decoding output is produced using the narrowed set of intermediate decoding alternatives; otherwise, the procedure iterates (column 5, lines 8 to 13: Figure 2: Step 134).

Concerning independent claims 6 and 15, *Kanevsky et al.* teaches a system and method for resolving decoding ambiguity via dialog has the advantage of improving language decoding performance and accuracy. (Column 1, Lines 50 to 53) It would have been obvious to one having ordinary skill in the art to utilize the system and

method for resolving decoding ambiguity to iteratively eliminate phrases until a final phrase is obtained as taught by *Kanevsky et al.* in the multi-modal dialog unit of *Kuhn et al.* for the purpose of improving language decoding performance and accuracy.

Concerning claims 7 and 16, *Kanevsky et al.* teaches selection classes may include classification questions about space relationships (column 3, lines 40 to 63), corresponding to "location information", which is one of the enumerated alternatives.

Concerning independent claim 26, *Kuhn et al.* discloses a system, comprising:

"a voice interface to receive digitized voice data from a user" – speech input supplied through microphone 26 is first digitized (column 3, lines 66 to 67: Figure 2);

"a voice recognition engine processes the voice data to determine one or more phrases recognized as the digitized voice data provided by the user based on a currently active recognition grammar" – the output of speech recognizer module 40 is supplied to the natural language parser 42 working in conjunction with a set of goal oriented grammars 44 (column 3, line 66 to column 4, line 10: Figure 2); in some instances, the natural language parser will immediately identify a program the user is interested in watching, but in other instances, there may be multiple choices or possibilities (column 4, lines 38 to 54: Figure 2); the set of grammars have context-sensitive grammar rules for each topic, e.g. grammar A 240 and grammar B 242 ("a currently active recognition grammar") (column 6, lines 50 to 65: Figure 4);

"a database containing user context information" – the dialog manager has a user profile data store 56, which stores information about the user's previous information selections; thus, this data store helps the dialog manager tune its prompts to best suit the user's expectations (column 4, lines 48 to 54: Figure 2);

"a user context natural language processor having a capability to select user-specific context information from a database and use the user-specific context information to choose a recognized phrase from the one or more phrases recognized as the voice data when the voice recognition engine recognized more than one phrase as the voice data provided by the user" – the output of speech recognizer module 40 is supplied to the natural language parser 42 (column 3, line 67 to column 4, line 2: Figure 2); automatic speech recognition process block 217 generates word confidence vector 268 which indicates how well words in input sentence 218 were recognized; the dialog manager has a user profile data store 56, which stores information about the user's previous information selections ("user-specific context information"); thus, this data store helps the dialog manager tune its prompts to best suit the user's expectations (column 4, lines 48 to 54: Figure 2); dialog manager 130 generates dialogue context weights 269 by determining the state of the dialog by asking the user about a particular topic; due to this request, dialog manager 130 determines what the user said (column 7, lines 18 to 29: Figure 4); N-best processor 270 selects the highest-scoring candidate as what the user intended (column 7, lines 59 to 64: Figure 4).

Concerning independent claim 26, *Kuhn et al.* discloses an N-best processor selects the N-best candidates based upon associated scores ("elements of uncertainty") by a plurality of passes (column 7, line 60 to column 8, line 5); *Kanevsky et al.* teaches personal characteristics class directed to sex, age, profession or personal profile (column 4, lines 42 to 44), containing customer related information such as the customer's buying habits, buying needs, and customer's profession (column 5, lines 44 to 53) ("user-specific context information"), where an N-best list (column 4, lines 7 to 14) narrows the set of ambiguities to select a final decoding output from a narrowed set of intermediate decoding alternatives (column 5, lines 3 to 13: Figure 2).

Concerning claims 9 and 18, similar considerations apply as to independent claim 26.

Response to Arguments

3. Applicant's arguments filed 13 July 2005 have been fully considered but they are not persuasive.

Firstly, Applicant argues that there is no motivation to combine *Kuhn et al.* in view of *Kanevsky et al.* Applicant admits a motivation is provided that "it would have been obvious to one having ordinary skill in the art to utilize the system and method for resolving decoding ambiguity to iteratively eliminate phrases until a final phrase is obtained as taught by *Kanevsky et al.* in the multi-modal dialog until of *Kuhn et al.* for the purpose of improving language decoding performance and accuracy." However, Applicant submits the motivation is purely conclusory and that no motivation exists in

either reference for such a combination, and the simple fact that both references generally discuss speech does not suggest a motivation to combine the references. This position is not convincing.

The cited motivation is expressly stated by *Kanevsky et al.*, and provides a *prima facie* reason for combining *Kuhn et al.* and *Kanevsky et al.* Applicant's argument represents a mere allegation of patentability, and a denial of the validity of the combination, without providing a rationale as to why the expressly stated motivation is deficient. Applicant's position can be construed as attacking the references individually without addressing the basis of the combination. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). A motivation to improve language decoding performance and accuracy by providing a method of resolving ambiguities in language recognition, as expressly stated by *Kanevsky et al.* at Column 1, Lines 50 to 60, constitutes a reason for combination, and a rationale for *prima facie* obviousness.

Moreover, *Kuhn et al.* and *Kanevsky et al.* do more than simply both discuss speech. Both *Kuhn et al.* and *Kanevsky et al.* represent systems and methods for speech recognition involving interactive dialogues. Both *Kuhn et al.* and *Kanevsky et al.* provide methods for improving speech recognition. *Kuhn et al.* discloses a method of improving speech recognition performance by a set of context-sensitive grammars and a dialog history. *Kanevsky et al.* discloses a method of improving speech recognition performance by resolving ambiguities with questions directed to alternative classes

based upon personal characteristics. In fact, *Kuhn et al.* asks questions during a dialogue, including questions about viewing time, to determine whether the state of the dialogue is time-oriented, to resolve ambiguities during speech recognition, in a manner analogous to *Kanevsky et al.* (Column 7, Lines 20 to 26) Thus, *Kuhn et al.* and *Kanevsky et al.* providing cumulative methods for improving speech recognition performance involving interactive dialogues.

Secondly, Applicant argues that the combination of *Kuhn et al.* and *Kanevsky et al.* does not teach all of the elements of independent claims 6, 15, and 26. Specifically, Applicant maintains that *Kuhn et al.* does not teach the element of "when more than one phrase is recognized as the digitized voice data provided by the user as a result of voice-recognition uncertainty, using user-specific context information to choose a recognized phrase from the one or more phrases recognized as the digitized voice data." Applicant says that nothing in *Kuhn et al.* makes any reference to "voice recognition uncertainty". Instead, Applicant states that *Kuhn et al.* generates a confidence vector, *i.e.* a measure of how well the words in the input sentence were recognized. This position is traversed.

A voice recognition uncertainty is equivalent to a measure of how well words were recognized. *Kuhn et al.* discloses a word confidence vector to determine how well each word in an input sentence was recognized. A high value for a word confidence vector corresponds to a low voice recognition uncertainty, and a low value for a word confidence vector corresponds to a high voice recognition uncertainty. Then, *Kuhn et al.* generates a score for a phrase or sentence by combining together all of the word

confidence vectors for individual words, as weighted by dialogue context weights. (Column 7, Lines 18 to 59) A list of N-best candidates is then produced, and the process iterates to feed back to a next pass, corresponding to Applicant's "when more than one phrase is recognized as the digitized voice data provided by the user as a result of voice-recognition uncertainty". (Column 7, Line 60 to Column 8, Line 5) Thus, scores and confidence vectors represent a relative certainty or uncertainty of phrases and words, respectively.

Finally, Applicant argues that *Kuhn et al.* does not teach the use of "user-specific context information". Applicant says that when *Kuhn et al.* asks the user about a particular topic to generate context weights, this is not based on elements of uncertainty, as claimed. Applicant states that nothing in *Kuhn et al.* teaches or suggests a selection of user-specific context information, and that *Kanevsky et al.* does not teach or suggest this element. This position is not persuasive.

Both *Kuhn et al.* and *Kanevsky et al.* disclose aspects of "user-specific context information" to resolve uncertainty. *Kuhn et al.* generates a time question to provide dialogue context weights to resolve uncertainty, and maintains a dialogue history to resolve uncertainty based upon what a specific user has already said. *Kanevsky et al.* discloses resolving ambiguity by asking questions about decoding alternatives, where the decoding alternatives are based up personal characteristics found in a user's personal profile. (Column 4, Lines 42 to 45) Thus, both *Kuhn et al.* and *Kanevsky et al.* teach resolving uncertainty based upon user-specific context information.

Therefore, the rejection of claims 6, 7, 9, 15, 16, 18, and 26 under 35 U.S.C. 103(a) as being unpatentable over *Kuhn et al.* in view of *Kanevsky et al.* is proper.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (571) 272-7608. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ML
8/18/05

VIJAY CHAWAN
PRIMARY EXAMINER